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Conchas Reservoir
San Miquel County, New Mexico

National Eutrophication Survey, Las Vegas, Nev

Prepared for

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U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

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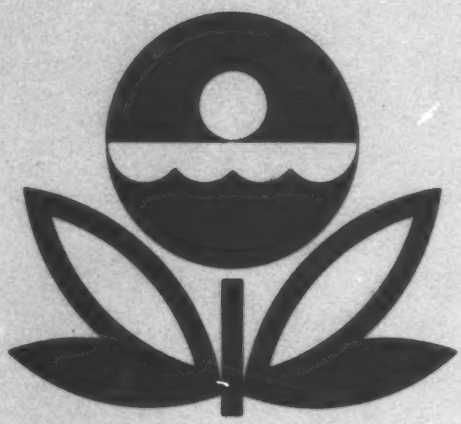

CORVALLIS ENVIRONMENTAL RESEARCH LABORATORY - CORVALLIS, OREGON

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ENVIRONMENTAL MONITORING & SUPPORT LABORATORY - LAS VEGAS, NEVADA

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REPORT
ON
CONCHAS RESERVOIR
SAN MIGUEL COUNTY
NEW MEXICO
EPA REGION VI
WORKING PAPER No. 819

WITH THE COOPERATION OF THE
NEW MEXICO ENVIRONMENTAL IMPROVEMENT AGENCY
AND THE
NEW MEXICO NATIONAL GUARD
JULY, 1977

REPORT ON CONCHAS RESERVOIR

SAN MIGUEL COUNTY, NEW MEXICO

EPA REGION VI

by

National Eutrophication Survey

Water and Land Quality Branch
Monitoring Operations Division
Environmental Monitoring & Support Laboratory
Las Vegas, Nevada

and

Special Studies Branch
Corvallis Environmental Research Laboratory
Corvallis, Oregon

Working Paper No. 819

OFFICE OF RESEARCH AND DEVELOPMENT
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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to freshwater lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point source discharge reduction and nonpoint source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's freshwater lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by the U.S. Environmental Protection Agency and to augment plans implementation by the states.

ACKNOWLEDGMENTS

The staff of the National Eutrophication Survey (Office of Research and Development, U.S. Environmental Protection Agency) expresses sincere appreciation to the New Mexico Environmental Improvement Agency for professional involvement, to the New Mexico National Guard for conducting the tributary sampling phase of the Survey, and to those New Mexico wastewater treatment plant operators who provided effluent samples and flow data.

The staff of the Surveillance Section, Water Quality Division, New Mexico Environmental Improvement Agency provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports and provided critiques most useful in the preparation of this Working Paper Series.

Brigadier General Franklin E. Miles, the Adjutant General of New Mexico, and Project Officer Colonel Marvin D. Bohannon, who directed the volunteer efforts of the New Mexico National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF NEW MEXICO

LAKE NAME	COUNTY
Alamogordo Reservoir (Sumner Lake)	De Baca, Guadalupe
Bluewater Lake	Valencia, McKinley
Conchas Reservoir	San Miguel
Eagle Nest Lake	Colfax
Elephant Butte Reservoir	Sierra
El Vado Reservoir	Rio Arriba
Lake McMillan	Eddy
Ute Reservoir	Quay

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15. SUPPLEMENTARY NOTES

Prepared in cooperation with the U.S. Environmental Protection Agency, Corvallis Environmental Research Laboratory, Eutrophication Survey Branch, Corvallis, OR 97330

16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

17. KEY WORDS AND DOCUMENT ANALYSIS

a. DESCRIPTORS	b. IDENTIFIERS/OPEN ENDED TERMS	c. COSATI Field/Group
eutrophication lakes nutrients phosphorus nitrogen loading		48G

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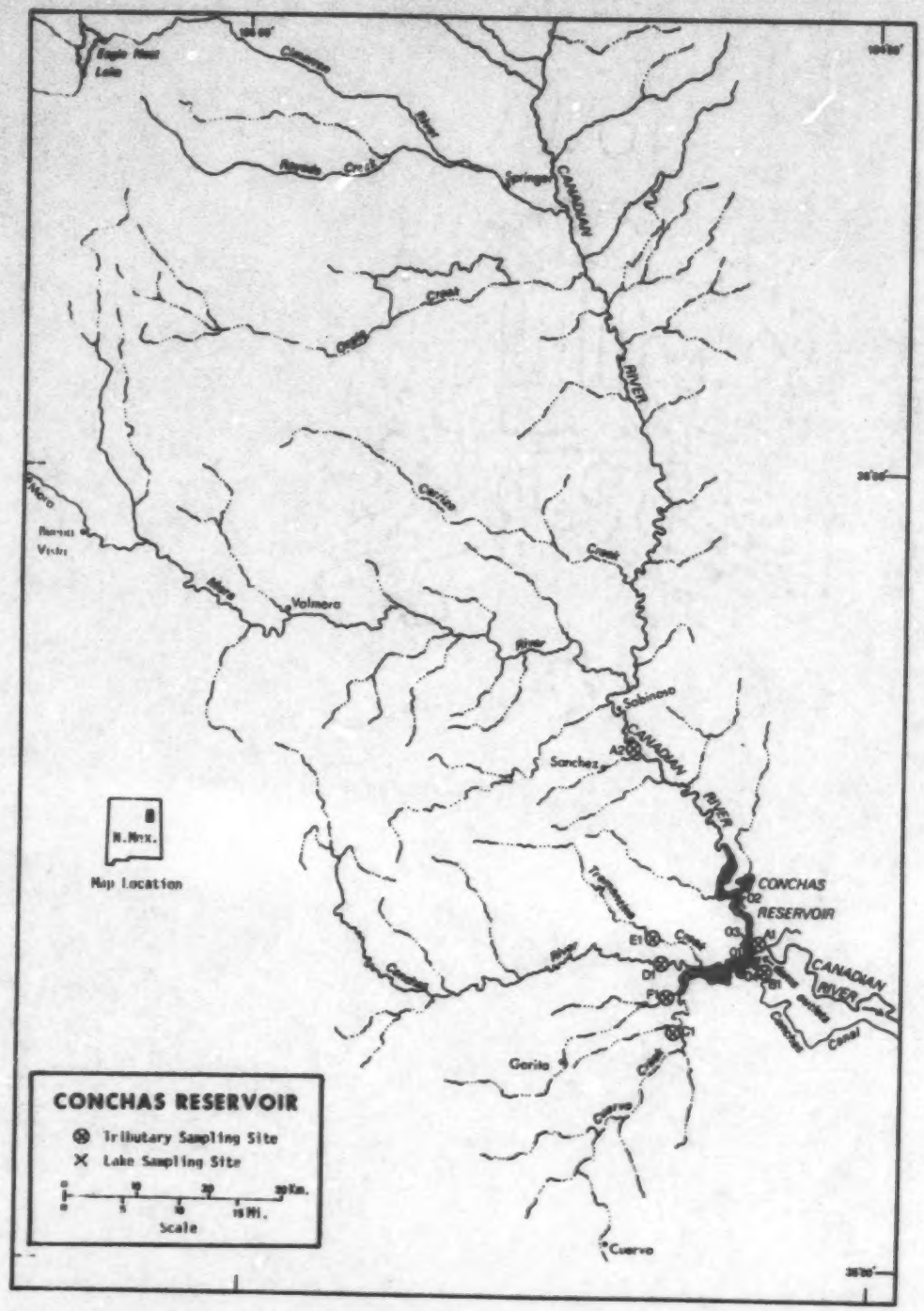
CONCHAS RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Scale
Map Location
N.Mex.
CANADIAN RIVER
CONCHAS RESERVOIR
Sanchez
Volmora
Cuervo
Gorila

REPORT ON CONCHAS RESERVOIR, NEW MEXICO

STORET NO. 3503

I. CONCLUSIONS

A. Trophic Condition:*

Based upon Survey data, Conchas Reservoir is considered mesotrophic with a tendency towards a eutrophic condition during summertime. Chlorophyll a values in the lake were typical of those observed in a mesotrophic water body; with ranges from 0.9 µg/l to 8.9 µg/l, and a mean of 3.3 µg/l. Secchi disc visibility was low and potential for primary production as measured by algal assay control yields was generally moderate. Of the nine New Mexico lakes sampled in 1975 (including Navajo Reservoir), eight had higher median total phosphorus levels (0.020 mg/l), seven had higher median inorganic nitrogen values (0.040 mg/l) and six had higher median orthophosphorus levels (0.004 mg/l) than Conchas Reservoir.

Survey limnologists did not report any problem algal blooms or macrophyte growths during their visits to the lake. The New Mexico Environmental Improvement Agency (1974) reports the lake has good water quality but that during low water years high productivity and nutrient levels in the lake could result in undesirable algal growths.

*See Appendix E.

B. Rate-Limiting Nutrient:

Algal assay results indicate Conchas Reservoir was limited by available phosphorus levels during the 1975 sampling year. The lake data suggest primary limitation by nitrogen during spring and summer sampling and phosphorus limitation in autumn.

C. Nutrient Controllability:

1. Point sources -

There were no known point sources impacting Conchas Reservoir during the sampling year.

The estimated annual phosphorus loading of 0.29 g $P/m^2/yr$ was greater than Vollenweider's (1975) proposed "oligotrophic" level but less than his "eutrophic" loading. However, actual annual loading to the reservoir may be substantially higher, as a number of the tributaries draining into Conchas Lake were dry at the times when water samples were collected and no information on nutrient contributions to the lake budget from these tributaries is presently available. Other sources (New Mexico Environmental Improvement Agency, 1974; New Mexico Water Quality Control Commission, 1975) report that this lake faces possible enrichment problems as a result of rapid shoreline development and heavy recreational use. In light of the existing tendency towards nuisance algal growths during low water years with only nonpoint sources of enrichment, the lake

should be carefully monitored around newly developing areas for any signs of water quality deterioration.

2. Nonpoint sources

Nonpoint sources were estimated to have contributed all of the nutrient contributions to Conchas Reservoir during the sampling year. The New Mexico Water Quality Control Commission (1975) reports that nutrient enrichment in this lake is generally considered to result from natural leaching of nutrients from the arid Upper Sonoran watershed.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

Lake and drainage basin characteristics are itemized below. Lake morphometry data were provided by Martin and Hanson (1966) and Tony Drypolchen (personal communication). Tributary flow data were provided by the New Mexico District Office of the U.S. Geological Survey (USGS). Outlet drainage area includes the lake surface area. Mean hydraulic retention time was obtained by dividing the lake volume by mean flow of the outlet. Precipitation values are estimated by methods as outlined in National Eutrophication Survey (NES) Working Paper No. 175. A table of metric/English conversions is included as Appendix A.

A. Lake Morphometry:

1. Surface area: 38.83 km^2.
2. Mean depth: 11.8 meters.
3. Maximum depth: 43.0 meters.
4. Volume: 456.638 x 10^6 m^3.
5. Mean hydraulic retention time: 1106 days(3.0 yrs)

B. Tributary and Outlet:
(See Appendix B for flow data)

1. Tributaries -

Name	Drainage area (km^2)	Mean Flow (m^3/sec)
A-2 Canadian River	15,578.8	3.84
C-1 Cuervo Creek	655.3	0.11
D-1 Conchas River	1,354.6	0.40
E-1 Trementina Creek	168.3	0.05
F-1 Unnamed Stream	5.4	<0.01
Minor tributaries and immediate drainage -	1,388.3	0.36
Total	19,150.7	4.76
2. Outlet - A-1 Canadian River	19,189.3	4.78

C. Precipitation:

1. Year of sampling: 27.8 cm.
2. Mean annual: 33.2 cm.

III. LAKE WATER QUALITY SUMMARY

Conchas Reservoir was sampled three times during the open-water season of 1975 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from four stations on the lake and from a number of depths at each station (see map, page v). During each visit, depth-integrated samples were collected from each station for chlorophyll a analysis and phytoplankton identification and enumeration. During the first and last visits, 18.9-liter depth-integrated samples were composited for algal assays. Maximum depths sampled were 19.8 meters at Station 01, 15.2 meters at Station 02, 18.6 meters at Station 03, and 13.7 meters at Station 04. For a more detailed explanation of NES methods, see NES Working Paper No. 175.

The results obtained are presented in full in Appendix C and are summarized in III-A for waters at the surface and at the maximum depth for each site. Results of the phytoplankton counts and chlorophyll a determinations are included in III-B. Results of the limiting nutrient study are presented in III-C.

...UNCHAS RESERVOIR
STORET CODE 3503

PHYSICAL AND CHEMICAL CHARACTERISTICS

PARAMETER	(5/ 1/75) S*** = 4 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(8/21/75) S*** = 4 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)	(10/ 2/75) S*** = 4 N*	RANGE	MEDIAN	MAX DEPTH RANGE (METERS)
TEMPERATURE (DEG CENT)												
0.-1.5 M DEPTH	8	12.3- 13.8	13.1	0.0- 1.5	8	21.9- 24.1	23.4	0.0- 1.5	8	19.7- 20.0	19.8	0.0- 1.5
MAX DEPTH**	4	10.5- 12.1	11.3	12.5- 19.8	4	17.3- 18.4	17.9	13.1- 17.4	4	19.1- 19.4	19.3	11.0- 16.8
DISSOLVED OXYGEN (MG/L)												
0.-1.5 M DEPTH	8	8.4- 9.2	8.8	0.0- 1.5	8	6.6- 7.6	7.0	0.0- 1.5	8	5.8- 7.2	6.6	0.0- 1.5
MAX DEPTH**	4	7.2- 8.5	7.4	12.5- 19.8	4	0.6- 1.2	0.9	13.1- 17.4	4	5.6- 7.0	6.3	11.0- 16.8
CONDUCTIVITY (UMHOS)												
0.-1.5 M DEPTH	8	672.- 730.	690.	0.0- 1.5	8	967.-1044.	1017.	0.0- 1.5	7	717.- 770.	750.	0.0- 1.5
MAX DEPTH**	4	656.- 685.	669.	12.5- 19.8	4	685.- 948.	866.	13.1- 17.4	4	712.- 752.	751.	11.0- 16.8
PH (STANDARD UNITS)												
0.-1.5 M DEPTH	8	8.3- 8.4	8.3	0.0- 1.5	8	8.2- 8.4	8.3	0.0- 1.5	8	8.2- 8.3	8.3	0.0- 1.5
MAX DEPTH**	4	8.3- 8.4	8.3	12.5- 19.8	4	7.7- 8.4	7.9	13.1- 17.4	4	8.2- 8.3	8.3	11.0- 16.8
TOTAL ALKALINITY (MG/L)												
0.-1.5 M DEPTH	8	160.- 168.	164.	0.0- 1.5	8	145.- 153.	150.	0.0- 1.5	8	146.- 153.	150.	0.0- 1.5
MAX DEPTH**	4	161.- 165.	162.	12.5- 19.8	4	131.- 171.	152.	13.1- 17.4	4	149.- 152.	150.	11.0- 16.8
TOTAL P (MG/L)												
0.-1.5 M DEPTH	8	0.011-0.018	0.013	0.0- 1.5	8	0.021-0.040	0.024	0.0- 1.5	8	0.017-0.022	0.018	0.0- 1.5
MAX DEPTH**	4	0.015-0.187	0.044	12.5- 19.8	4	0.032-0.044	0.042	13.1- 17.4	4	0.020-0.037	0.032	11.0- 16.8
DISSOLVED ORTHO P (MG/L)												
0.-1.5 M DEPTH	8	0.004-0.017	0.011	0.0- 1.5	8	0.004-0.012	0.004	0.0- 1.5	8	0.002-0.003	0.002	0.0- 1.5
MAX DEPTH**	4	0.003-0.019	0.006	12.5- 19.8	4	0.008-0.021	0.010	13.1- 17.4	4	0.002-0.003	0.003	11.0- 16.8
NO2+NO3 (MG/L)												
0.-1.5 M DEPTH	8	0.020-0.050	0.020	0.0- 1.5	8	0.020-0.020	0.020	0.0- 1.5	8	0.020-0.030	0.020	0.0- 1.5
MAX DEPTH**	4	0.020-0.040	0.030	12.5- 19.8	4	0.020-0.100	0.020	13.1- 17.4	4	0.020-0.030	0.020	11.0- 16.8
AMMONIA (MG/L)												
0.-1.5 M DEPTH	8	0.020-0.030	0.025	0.0- 1.5	8	0.020-0.030	0.020	0.0- 1.5	8	0.020-0.030	0.020	0.0- 1.5
MAX DEPTH**	4	0.040-0.060	0.045	12.5- 19.8	4	0.020-0.140	0.110	13.1- 17.4	4	0.020-0.030	0.025	11.0- 16.8
KJELDAHL N (MG/L)												
0.-1.5 M DEPTH	8	0.200-0.400	0.350	0.0- 1.5	8	0.200-0.300	0.300	0.0- 1.5	8	0.200-0.400	0.400	0.0- 1.5
MAX DEPTH**	4	0.300-0.600	0.350	12.5- 19.8	4	0.200-0.500	0.350	13.1- 17.4	4	0.300-0.400	0.400	11.0- 16.8
SECCHI DISC (METERS)	4	0.9- 1.5	1.2		4	1.1- 1.5	1.3		4	0.8- 1.5	1.1	

* N = NO. OF SAMPLES
** MAXIMUM DEPTH SAMPLED AT EACH SITE
*** S = NO. OF SITES SAMPLED ON THIS DATE

B. Biological Characteristics:

1. Phytoplankton -

Sampling Date	Dominant Genera	Algal Units per ml
05/01/75	1. Chroomonas ?	915
	2. Ankistrodesmus	335
	3. Oocystis	134
	4. Asterionella	45
	Other genera	--
	Total	1,429
08/21/75	1. Chroomonas ?	402
	2. Oocystis	183
	3. Ankistrodesmus	110
	4. Oscillatoria	73
	5. Cryptomonas	37
	Other genera	72
	Total	877
10/02/75	1. Chroomonas ?	118
	2. Cryptomonas	59
	3. Trachelomonas	29
	4. Scenedesmus	29
	5. Ankistrodesmus	29
	Other genera	30
	Total	294

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
05/01/75	01	1.3
	02	0.9
	03	1.4
	04	2.5
08/21/75	01	3.9
	02	5.0
	03	4.1
	04	8.9
10/02/75	01	2.7
	02	3.0
	03	1.8
	04	3.8

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum Yield (mg/l-dry wt.)
a. 05/01/75 Stations 01,04			
Control	<0.005	0.055	0.4
0.05 P	<0.055	0.055	3.2
0.05 P + 1.0 N	<0.055	1.055	14.4
1.00 N	<0.005	1.055	0.2
	Stations 02,03		
Control	<0.005	0.045	0.1
0.05 P	<0.055	0.045	3.5
0.05 P + 1.0 N	<0.055	1.045	16.4
1.00 N	<0.005	1.045	0.2
b. 10/02/75 Stations 01-04			
Control	0.005	0.100	0.3
0.05 P	0.055	0.100	6.3
0.05 P + 1.0 N	0.055	1.100	20.8
1.00 N	0.005	1.100	0.3

2. Discussion -

The control yields of the assay alga, Selenastrum capricornutum, indicate that the potential for primary productivity in Conchas Reservoir was moderately low during the sample collection times (05/01/75, 10/02/75). In all assays, the increased growth of the test alga over the control yield in response to the addition of phosphorus, as well as the lack of response to the addition of nitrogen, indicates phosphorus limitation. Maximum yield was achieved by the simultaneous addition of nitrogen and phosphorus.

The mean inorganic nitrogen to orthophosphorus (N/P) ratios in the lake data were approximately 6/1, 9/1 and 23/1 in the spring, summer, and fall, respectively, suggesting primary limitation by nitrogen in the spring and summer and phosphorus limitation in the fall (a mean N/P ratio of 14/1 or greater generally reflects phosphorus limitation).

IV. NUTRIENT LOADINGS
(See Appendix D for data)

For the determination of nutrient loadings, the New Mexico National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page v), except for the high runoff months of April and May when two samples were collected. Sampling was begun in December 1974, and was completed in November 1975.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the New Mexico District Office of the USGS for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a USGS computer program for calculating stream loadings. Nutrient loads indicated for tributaries are those measured minus known point source loads, if any.

Nutrient loadings for unsampled "minor tributaries and immediate drainage" ("ZZ" of USGS) were estimated by using the mean annual nutrient loads, in kg/km^2/year, of the Canadian River at Station A-2 and multiplying the means by the ZZ area in km^2.

A. Waste Sources:

1. Known municipal - None
2. Known industrial - None

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Canadian River	9,245	80.7
C-1 Cuervo Creek	?	---
D-1 Conchas River	95	0.8
E-1 Trementina Creek	?	---
F-1 Unnamed Stream	?	---
b. Minor tributaries and immediate drainage (nonpoint load) -	1,390	12.2
c. Known municipal STP's - None		
d. Septic tanks* -	40	0.4
e. Known industrial - None		
f. Direct precipitation** -	680	5.9
Total	11,450	100.0%
2. Outputs - A-1 Canadian River	690	
3. Net annual P accumulation -	10,760	

*Estimate based on 126 lakeshore residences, 3 parks and 1 camp.
**Estimated (See NES Working Paper No. 175).

C. Annual Total Nitrogen Loading -- Average Year:

1. Inputs -

Source	kg N/yr	% of total
a. Tributaries (nonpoint load) -		
A-2 Canadian River	111,560	61.5
C-1 Cuervo Creek	?	----
D-1 Conchas River	16,690	9.2
E-1 Trementina Creek	?	----
F-1 Unnamed Stream	?	----
b. Minor tributaries and immediate drainage (nonpoint load) -	9,720	5.4
c. Known municipal STP's - None		
d. Septic tanks* -	1,520	0.8
e. Known industrial - None		
f. Direct precipitation** -	41,920	23.1
Total	181,410	100.0%
2. Outputs - A-1 Canadian River	624,795	
3. Net annual N export*** -	443,385	

*Estimate based on 126 lakeshore residences, 3 parks and 1 camp.
**Estimated (See NES Working Paper No. 175).
***Export probably due to unknown sources and/or sampling error.

D. **Mean Annual Nonpoint Nutrient Export by Subdrainage Area:**

Tributary	kg P/km^2/yr	kg N/km^2/yr
Canadian River	1	7
Conchas River	<1	12

E. **Mean Nutrient Concentrations in Ungaged Streams:**

Tributary	Mean Total P (mg/l)	Mean Total N (mg/l)
B-1 Conchas Canal	0.019	0.683
E-1 Trementina Creek	0.420	2.020

F. Yearly Loadings:

In the following table, the existing phosphorus annual loading is compared to the relationship proposed by Vollenweider (1975). Essentially, his "eutrophic" loading is that at which the receiving waters would become eutrophic or remain eutrophic; his "oligotrophic" loading is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A "mesotrophic" loading would be considered one between "eutrophic" and "oligotrophic".

Note that Vollenweider's model may not apply to lakes with short hydraulic retention times or in which light penetration is severely restricted by high concentrations of suspended solids in the surface waters.

	Total Yearly Phosphorus Loading ($g/m^2/yr$)
Estimated loading for Conchas Reservoir	0.29
Vollenweider's "eutrophic" loading	0.39
Vollenweider's "oligotrophic" loading	0.20

V. LITERATURE REVIEWED

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VI. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR NEW MEXICO 12/16/76

LAKE CODE 3503 CONCHAS RESERVOIR

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 19189.3

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
3503A1	19189.3	0.88	0.68	0.82	2.44	8.58	9.49	7.96	12.86	8.27	3.68	0.62	0.79	4.78
3503A2	15578.8	0.76	0.57	0.68	2.04	7.08	8.21	5.66	10.19	6.51	2.89	0.54	0.71	3.84
3503C1	655.3	0.001	0.010	0.012	0.034	0.114	0.031	0.453	0.396	0.164	0.096	0.009	0.001	0.112
3503D1	1354.6	0.045	0.054	0.062	0.178	0.793	0.453	0.963	1.048	0.821	0.311	0.048	0.003	0.407
3503E1	168.3	0.002	0.005	0.007	0.021	0.059	0.034	0.215	0.161	0.091	0.042	0.006	0.001	0.054
3503F1	5.4	0.000	0.000	0.000	0.001	0.003	0.003	0.002	0.004	0.002	0.001	0.000	0.0	0.001
3503Z2	1427.1	0.065	0.051	0.062	0.184	0.651	0.708	0.595	0.963	0.623	0.275	0.045	0.059	0.356

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 19189.3
SUM OF SUB-DRAINAGE AREAS = 19189.6

TOTAL FLOW IN = 56.93
TOTAL FLOW OUT = 57.06

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
3503A1	12	74	0.156	7	0.269				
	1	75	0.016	4	0.255				
	2	75	0.0	1	0.0				
	3	75	0.051	1	0.0				
	4	75	0.088	8	0.0	20	0.0		
	5	75	0.016	4	0.0	15	0.0		
	6	75	0.051	9	0.0				
	7	75	0.0	12	0.0				
	8	75	0.096	23	0.0				
	9	75	0.054	13	0.0				
	10	75	0.212	4	0.0				
	11	75	0.085	24	0.057				
3503A2	12	74	0.340	7	0.266				
	1	75	0.736						
	2	75	1.019	1	1.218				
	3	75	0.680	1	1.019				
	4	75	0.934	5	0.453	20	2.577		
	5	75	0.963	4	0.821	15	0.218		
	6	75	2.294	9	1.756				
	7	75	2.577	12	0.595				
	8	75	0.538	23	0.311				
	9	75	2.124						
	10	75	0.453	4	0.765				
	11	75	0.340	24	0.0				

ATRO MOSA VARIABRI

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TRIBUTARY FLOW INFORMATION FOR NEW MEXICO 12/16/76

LAKE CODE 3503 CONCHAS RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
350391	12	74	0.0	7	0.0				
	1	75	0.0	4	0.0				
	2	75	0.0	1	0.0				
	3	75	0.0	1	0.0				
	4	75	1.104	5	0.0	20	0.0		
	5	75	7.646	4	8.948	15	8.495		
	6	75	4.134	9	4.361				
	7	75	2.577	12	2.605				
	8	75	5.805	23	6.909				
	9	75	4.248	13	3.681				
	10	75	3.228	4	4.502				
	11	75	0.0	24	0.0				
3503C1	12	74	0.0	7	0.0				
	1	75	0.0	4	0.0				
	2	75	0.001	1	0.0				
	3	75	0.001	1	0.0				
	4	75	0.001	5	0.0	20	0.0		
	5	75	0.004	4	0.0	15	0.0		
	6	75	0.0						
	7	75	0.159	12	0.0				
	8	75	0.311	23	0.0				
	9	75	0.002						
	10	75	0.0	4	0.0				
	11	75	0.0	24	0.0				
3503D1	12	74	0.002	7	0.001				
	1	75	0.003	4	0.003				
	2	75	0.006						
	3	75	0.003	1	0.003				
	4	75	0.003	5	0.0	20	0.0		
	5	75	0.025	4	0.0	15	0.0		
	6	75	0.0	9	0.0				
	7	75	0.340						
	8	75	0.793	23	0.003				
	9	75	0.004						
	10	75	0.0	4	0.0				
	11	75	0.0	24	0.0				
3503E1	12	74	0.0	7	0.0				
	1	75	0.0	4	0.0				
	2	75	0.001	1	0.0				
	3	75	0.000	1	0.0				
	4	75	0.000	5	0.0	20	0.0		
	5	75	0.002	4	0.0	15	0.0		
	6	75	0.0	9	0.0				
	7	75	0.076	12	0.0				
	8	75	0.122	23	0.0				
	9	75	0.001						
	10	75	0.0	4	0.0				
	11	75	0.0	24	0.0				

TRIBUTARY FLOW INFORMATION FOR NEW MEXICO 12/16/76

LAKE CODE 3503 CONCHAS RESERVOIR

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
3503F1	12	74	0.0	7	0.0				
	1	75	0.0	4	0.0				
	2	75	0.0	1	0.0				
	3	75	0.0	1	0.0	15	0.0		
	4	75	0.0	5	0.0	20	0.0		
	5	75	0.0	4	0.0	15	0.0		
	6	75	0.0						
	7	75	0.001	12	0.0				
	8	75	0.003	23	0.0				
	9	75	0.0						
	10	75	0.0	4	0.0				
	11	75	0.0	24	0.0				
3503Z2	12	74	0.002						
	1	75	0.003						
	2	75	0.006						
	3	75	0.003						
	4	75	0.003						
	5	75	0.026						
	6	75	0.0						
	7	75	0.368						
	8	75	0.021	30	0.0				
	9	75	0.004						
	10	75	0.0						
	11	75	0.0						

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APPENDIX C

PHYSICAL AND CHEMICAL DATA

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

350301
35 24 09.0 104 11 30.0 3
CONCHAS RESERVOIR
35047 NEW MEXICO

/TYPA/AMBNT/LAKE

11EPALES 760109 04001002
0069 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/05/01	14 25	0000	13.3	8.6	45	690	8.40	160	0.020	0.400	0.020K	0.004
	14 25	0005	13.2	8.8		688	8.30	162	0.020K	0.400	0.020K	0.004
	14 25	0015	12.4	8.2		673	8.20	161	0.020	0.400	0.020K	0.004
	14 25	0030	11.5	8.2		665	8.40	161	0.020	0.400	0.020K	0.004
	14 25	0065	10.5	7.6		656	8.40	162	0.050	0.400	0.020K	0.003
75/08/21	13 00	0000	23.5	6.8	44	1044	8.20	150	0.020K	0.300	0.030	0.003
	13 00	0005	22.8	6.8		1033	8.30	150	0.020K	0.300	0.020K	0.004
	13 00	0020	22.1	5.2		1011	8.20	151	0.020K	0.400	0.020K	0.005
	13 00	0035	20.2	1.8		983	7.90	156	0.060	0.400	0.020K	0.003
	13 00	0057	17.6	0.8		937	7.80	171	0.140	0.500	0.020K	0.007
75/10/02	17 20	0000	19.8	7.0	48	757	8.30	152	0.020	0.400	0.020K	0.021
	17 20	0005	19.9	6.6			8.30	153	0.020	0.400	0.020K	0.003
	17 20	0015	19.7	6.8		754	8.30	152	0.020	0.400	0.020K	0.002
	17 20	0030	19.5	6.4		750	8.25	149	0.020	0.400	0.020K	0.002
	17 20	0055	19.3	6.8		751	8.25	149	0.020K	0.600	0.020K	0.003

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/05/01	14 25	0000	0.012	1.3	
	14 25	0005	0.015		
	14 25	0015	0.010		
	14 25	0030	0.013		
	14 25	0065	0.015		
75/08/21	13 00	0000	0.022	3.9	
	13 00	0005	0.026		
	13 00	0020	0.022		
	13 00	0035	0.026		
	13 00	0057	0.040		
75/10/02	17 20	0000	0.018	2.7	
	17 20	0005	0.017		
	17 20	0015	0.019		
	17 20	0030	0.026		
	17 20	0055	0.035		

K VALUE KNOWN TO BE LESS
THAN INDICATED

NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

350302
35 27 47.0 104 12 33.0 3
CONCHAS RESERVOIR
35047 NEW MEXICO

/TYPA/AMBNT/LAKE

11EPALES 760109 04001002
0054 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/05/01	14 55	0000	13.8	9.2	61	730	8.40	166	0.030	0.300	0.020K	0.011
	14 55	0005	13.3	8.4		730	8.30	163	0.030	0.400	0.020K	0.012
	14 55	0015	12.9	8.2		730	8.40	167	0.030	0.400	0.020K	0.011
	14 55	0030	12.5	8.2		727	8.10	164	0.040	0.400	0.020K	0.010
	14 55	0050	11.6	7.2		685	8.30	165	0.060	0.300	0.040	0.019
75/08/21	13 40	0000	24.1	7.4	60	981	8.20	147	0.020K	0.300	0.020K	0.007
	13 40	0005	23.7	7.2		967	8.35	149	0.030	0.300	0.020K	0.006
	13 40	0020	23.3	5.8		924	8.20	145	0.030	0.300	0.020K	0.006
	13 40	0043	18.4	1.2		685	7.95	131	0.090	0.400	0.100	0.006
75/10/02	16 35	0000	20.0	6.6	42	720	8.30	146	0.030	0.300	0.030	0.002
	16 35	0005	19.8	5.8		717	8.20	147	0.030	0.400	0.030	0.002
	16 35	0015	19.6	6.0		723	8.20	149	0.030	0.400	0.030	0.002K
	16 35	0036	19.3	5.6		712	8.25	150	0.030	0.400	0.030	0.003

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/05/01	14 55	0000	0.011	0.9	
	14 55	0005	0.013		
	14 55	0015	0.015		
	14 55	0030	0.019		
	14 55	0050	0.036		
75/08/21	13 40	0000	0.023	5.0	
	13 40	0005	0.024		
	13 40	0020	0.025		
	13 40	0043	0.044		
75/10/02	16 35	0000	0.020	3.0	
	16 35	0005	0.019		
	16 35	0015	0.018		
	16 35	0036	0.020		

K VALUE KNOWN TO BE LESS THAN INDICATED

12

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

350303
35 25 26.0 104 11 43.0 3
CONCHAS RESERVOIR
35047 NEW MEXICO

/TYPA/AMBNT/LAKE

11EPALES 760109 04001002
0065 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/05/01	15 50	0000	13.1	9.2	51	690	8.30	165	0.030	0.300	0.020K	0.017
	15 50	0005	13.0	8.6		692	8.30	168	0.020	0.400	0.020K	0.012
	15 50	0015	12.3	8.8		671	8.50	167	0.020	0.200K	0.020K	0.004
	15 50	0030	12.0	9.0		675	8.30	166	0.020	0.200K	0.020K	0.013
	15 50	0061	11.1	7.2		660	8.40	162	0.040	0.300	0.020K	0.007
75/08/21	13 15	0000	23.5	6.6	60	1040	8.20	153	0.020K	0.200K	0.020K	0.005
	13 15	0005	23.4	6.8		1020	8.25	150	0.020K	0.200K	0.020K	0.004
	13 15	0015	23.1	6.4		1019	8.30	153	0.020K	0.200K	0.020K	0.003
	13 15	0026	21.4	2.6		988	7.95	155	0.020K	0.200K	0.020K	0.009
	13 15	0053	17.3	0.6		795	7.70	148	0.130	0.200	0.020	0.011
75/10/02	16 55	0000	19.7	6.4	58	750	8.20	152	0.030	0.400	0.020K	0.002
	16 55	0005	19.8	6.4		750	8.20	150	0.020	0.400	0.020K	0.002
	16 55	0015	19.6	6.0		751	8.20	151	0.020	0.500	0.020K	0.007
	16 55	0030	19.7	6.0		750	8.20	151	0.030	0.400	0.020K	0.002
	16 55	0050	19.4	5.8		751	8.20	152	0.030	0.400	0.020K	0.002

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/05/01	15 50	0000	0.014	1.4	
	15 50	0005	0.013		
	15 50	0015	0.013		
	15 50	0030	0.013		
	15 50	0061	0.052		
75/08/21	13 15	0000	0.027	4.1	
	13 15	0005	0.021		
	13 15	0015	0.020		
	13 15	0026	0.023		
	13 15	0053	0.044		
75/10/02	16 55	0000	0.017	1.8	
	16 55	0005	0.017		
	16 55	0015	0.019		
	16 55	0030	0.017		
	16 55	0050	0.030		

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 76/12/13

NATL EUTROPHICATION SURVEY
EPA-LAS VEGAS

350304
35 33 10.0 104 12 37.0 3
CONCHAS RESERVOIR
35047 NEW MEXICO

/TYPA/AMBNT/LAKE

11EPALES 760109 04001002
0044 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
75/05/01	16 20	0000	12.4	8.8	35	672	8.40	162	0.030	0.300	0.050	0.013
	16 20	0005	12.3	8.8		672	8.40	164	0.020	0.200K	0.020K	0.005
	16 20	0015	12.3	8.6		672	8.20	163	0.020K	0.200K	0.020K	0.004
	16 20	0041	12.1	8.5		678	8.30	161	0.040	0.600	0.030	0.006
75/08/21	12 30	0000	22.3	7.6	44	1014	8.30	146	0.020K	0.300	0.020K	0.012
	12 30	0005	21.9	7.4		1007	8.40	145	0.020K	0.300	0.020K	0.004
	12 30	0015	21.6	6.2		1000	8.30	146	0.020K	0.300	0.020K	0.005
	12 30	0030	19.4	2.0		934	7.95	150	0.030	0.300	0.030	0.006
	12 30	0045	18.3	1.0		948	8.40	156	0.020K	0.300	0.020K	0.004
75/10/02	16 00	0000	19.7	7.2	30	769	8.30	149	0.020K	0.200	0.020K	0.002
	16 00	0005	19.7	7.2		770	8.35	149	0.020K	0.200	0.020K	0.002K
	16 00	0015	19.7	7.2		765	8.35	143	0.020K	0.400	0.020K	0.003
	16 00	0030	19.5	7.2		757	8.30	147	0.020K	0.300	0.020K	0.002
	16 00	0044	19.1	7.0		752	8.30	149	0.020K	0.300	0.020K	0.003

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L	00031 INCDT LT REMNING PERCENT
75/05/01	16 20	0000	0.016	2.5	
	16 20	0005	0.018		
	16 20	0015	0.034		
	16 20	0041	0.187		
75/08/21	12 30	0000	0.040	8.9	
	12 30	0005	0.032		
	12 30	0015	0.027		
	12 30	0030	0.031		
	12 30	0045	0.032		
75/10/02	16 00	0000	0.019	3.8	
	16 00	0005	0.022		
	16 00	0015	0.022		
	16 00	0030	0.020		
	16 00	0044	0.037		

K VALUE KNOWN TO BE LESS
THAN INDICATED

APPENDIX D

TRIBUTARY AND WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

3503A1
35 24 10.0 104 11 20.0 4
CANADIAN RIVER
35 7.5 CONCHAS DAM
O/CONCHAS RESERVOIR 101291
BNK 50 FT N END DRT RD .6 M N NT 129 JCT
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/07	10	00	0.024	0.700	0.075	0.005K	0.010
75/01/04	09	40	0.024	1.250	0.056	0.005K	0.020
75/02/01	10	00	0.024	0.700	0.064	0.005	0.015
75/03/01	10	05	0.020	0.250	0.040	0.005	0.020
75/04/05	10	10	0.010	1.400	0.067	0.005K	0.030
75/04/20	09	15	0.020	0.600	0.075	0.005K	0.010K
75/05/04	09	15	0.025	1.000	0.108	0.005	0.020
75/05/15	09	35	0.015	0.600	0.065	0.005K	0.020
75/06/09	11	25	0.025	0.400	0.075	0.005K	0.010K
75/07/12	09	45	0.025	1.550	0.065	0.005	0.010
75/08/23	07	55	0.005	0.925	0.195	0.005	
75/09/13	10	05	0.005	2.200	0.160	0.065	0.065
75/10/04	10	15	0.020	0.800	0.090	0.005	0.040
75/11/24	14	30	0.022	0.400	0.050	0.005K	0.020

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

3503A2
35 39 20.0 104 25 35.0 4
CANADIAN RIVER
35 SAN MIGUEL CO MP
T/CONCHAS RESERVOIR 101291
RT 65 BRDG 8 MI SSE OF SABINOSO
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/07	14	25	0.008	1.500	0.030	0.005K	0.020
75/02/01	13	00	0.008	0.300	0.008K	0.005K	0.025
75/03/01	12	30	0.005	0.650	0.025	0.010	0.055
75/04/05	13	00	0.005	0.700	0.020	0.005K	0.060
75/04/20	14	20	0.005	0.850	0.020	0.010	0.090
75/05/04	14	20	0.010	0.450	0.020	0.010	0.090
75/05/15	14	10	0.005	0.375	0.010	0.005K	0.080
75/06/09	13	50	0.010	1.100	0.015	0.005K	0.090
75/07/12	12	20	0.025	2.200	0.025	0.015	0.160
75/08/23	14	00	0.005	0.600	0.010	0.010	0.160
75/10/04			0.010	0.500	0.010	0.010	0.090

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

350381
35 22 50.0 104 10 58.0 4
CONCHAS CANAL
35 7.5 CONCHAS DAM
O/CONCHAS RESERVOIR 101291
BNK E OF TUNNEL ON RD .7 MI N RT 129 JCT
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/07	10 25		0.032	0.900	0.025	0.005K	0.010
75/01/04	09 30		0.040	1.330	0.040	0.010	0.010
75/02/01	09 50		0.032	1.000	0.016	0.005K	0.010
75/03/01	10 00		0.035	0.300	0.020	0.005	0.010
75/04/05	10 00		0.025	0.550	0.030	0.005	0.030
75/04/20	09 00		0.005	0.350	0.015	0.005K	0.010K
75/05/04	09 00		0.005	0.300	0.015	0.005K	0.010K
75/05/15	09 45		0.005	0.250	0.010	0.005K	0.010
75/06/09	11 00		0.005	0.300	0.020	0.005	0.010
75/07/12	09 00		0.020	1.150	0.010	0.005	0.020
75/08/23	09 45		0.005	0.850	0.010	0.005K	0.030
75/09/13	09 45		0.025	0.650	0.030	0.005	0.027
75/10/04	10 00		0.010	0.700	0.015	0.010	0.040

K VALUE KNOWN TO BE LESS
THAN INDICATED

STORET RETRIEVAL DATE 75/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

3503C1
35 18 00.0 104 18 45.0 4
CUERVO CREEK
35 SAN MIGUEL CO NM
T/CONCHAS RESERVOIR 101291
NT 129 BRDG 14 MI SE OF VARIADERO
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
75/07/12	10	20	0.840		0.020	0.100	

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

3503D1
35 23 30.0 104 20 15.0 4
CONCHAS RIVER
35 SAN MIGUEL CO MP
T/CONCHAS RESERVOIR 101291
LOW WTR FORD ON RNCH RD 6 M N HWY 104 JT
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
74/12/07	12	00	0.008	1.100	0.025	0.010	0.010
75/01/04	11	00	0.008	1.300	0.028	0.005	0.010K
75/03/01	11	00	0.005	0.100	0.020	0.005	0.010K
75/04/20	12	00	0.005	0.500	0.010	0.005K	0.010
75/05/04	12	00	0.005	0.550	0.015	0.005K	0.010K
75/08/23	12	00	0.010	1.250	0.020	0.040	

K VALUE KNOWN TO BE LESS THAN INDICATED

STORET RETRIEVAL DATE 76/12/16
NATL EUTROPHICATION SURVEY
EPA- LAS VEGAS

3503E1
35 24 50.0 104 20 45.0 4
TREMENTINA CREEK
35 SAN MIGUEL CO NP
T/CONCHAS RESERVOIR 101291
8NK 7 MI SE OF TREMENTINA
11EPALES 2111204
0000 FEET DEPTH CLASS 00

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
75/07/12	11	20	0.240	1.780	0.042	0.012	0.420

APPENDIX E

PARAMETRIC RANKINGS OF LAKES SAMPLED BY NES IN 1975

STATE OF NEW MEXICO

Mean or median values for six of the key parameters evaluated in establishing the trophic conditions of New Mexico lakes sampled are presented to allow direct comparison of the ranking, by parameter, of each lake relative to the others. Median total phosphorus, median inorganic nitrogen and median dissolved orthophosphorus levels are expressed in mg/l. Chlorophyll a values are expressed in µg/l. To maintain consistent rank order with the preceding parameters, the mean Secchi disc depth, in inches, is subtracted from 500. Similarly, minimum dissolved oxygen values are subtracted from 15 to create table entries.

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
0812	NAVAJO RESERVOIR	0.025	0.130	420.928	2.164	11.200	0.009
3501	ALAMOGORDO	0.025	0.050	469.667	5.867	10.600	0.003
3502	BLUE WATER LAKE	0.036	0.140	480.125	3.867	11.400	0.012
3503	CONCHAS RESERVOIR	0.020	0.040	451.833	3.275	14.400	0.004
3504	EAGLE NEST LAKE	0.181	0.070	455.750	13.357	14.400	0.132
3505	ELEPHANT BUTTE RESERVOIR	0.083	0.110	475.750	6.758	14.200	0.052
3506	EL VADO RESERVOIR	0.034	0.140	466.444	2.189	12.600	0.014
3507	LAKE MACMILLAN	0.097	0.045	489.778	14.133	10.100	0.009
3509	UTE RESERVOIR	0.021	0.040	448.750	3.242	13.800	0.004

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS ORTHO P
0812	NAVAJO RESERVOIR	63 (5)	25 (2)	100 (8)	100 (8)	75 (6)	56 (4)
3501	ALAMOGORDO	75 (6)	63 (5)	38 (3)	38 (3)	88 (7)	100 (8)
3502	BLUE WATER LAKE	38 (3)	6 (0)	13 (1)	50 (4)	63 (5)	38 (3)
3503	CONCHAS RESERVOIR	100 (8)	94 (7)	75 (6)	63 (5)	6 (0)	81 (6)
3504	EAGLE NEST LAKE	0 (0)	50 (4)	63 (5)	13 (1)	6 (0)	0 (0)
3505	ELEPHANT BUTTE RESERVOIR	25 (2)	38 (3)	25 (2)	25 (2)	25 (2)	13 (1)
3506	EL VADO RESERVOIR	50 (4)	6 (0)	50 (4)	88 (7)	50 (4)	25 (2)
3507	LAKE MACMILLAN	13 (1)	75 (6)	0 (0)	0 (0)	100 (8)	56 (4)
3509	UTE RESERVOIR	88 (7)	94 (7)	88 (7)	75 (6)	38 (3)	81 (6)